PM8800 WiZIRD 2x2

WiMAX Zero Intermediate Frequency Radio Device

Released Product Brief

Product Overview

The PM8800 WiZIRD 2x2 is an ultra-integrated single-chip WiMAX Zero Intermediate Frequency (ZIF) Radio Device. It is designed for Fixed and Mobile WiMAX applications and supports both IEEE 802.16-2004 and IEEE 802.16e-2005 standard requirements. The PM8800 WiZIRD 2x2 has two independent radio paths (2Tx and 2Rx) and supports operation in the 2.3 - 2.9 GHz or the 3.3 - 3.8 GHz licensed bands.

The PM8800 WiZIRD 2x2 enables manufacturers of WiMAX Femto BS, CPE, and MS User Equipment to build low-cost, high-performance, 2x2 MIMO equipment today.

Product Highlights

Ultra-Integration

Integration of key transmit and receive path components dramatically reduces the cost of materials and manufacturing, at the same time improving system reliability.

The PM8800 WiZIRD 2x2 features:

- Two independent radio paths (2Tx and 2Rx) supporting all Wave 2 MIMO features and enabling the radio path for uplink MIMO enhancements
- Zero-IF architecture removes the cost associated with external SAW filters
- Integrated DCXO supports AFC with no additional components, except for a low-cost 40 MHz crystal
- Integrated synthesizer loop filter improves noise immunity and reduces board space requirements
- 40 MHz reference is available for use by the Baseband MAC Processor
- Diagnostic loopback circuits for radio calibration and baseband diagnostics
- Integrated DAC/ADCs for digital I/Q designs allow Baseband MAC Processors to scale with Moore's Law without being burdened with analog circuits
- Integrated transmit baluns, digital temperature monitor, and Rx DC offset capability

Design Flexibility

Design flexibility is essential for equipment manufacturers, allowing them to react and adapt to changes in market requirements with minimal changes.

For flexibility, the PM8800 WiZIRD 2x2 includes:

- Multi-band support for operation in the 2.3 - 2.9 GHz or the 3.3 - 3.8 GHz licensed bands, enabling system designs that are suitable for use across multiple geographies
- The choice of selecting an analog or digital I/Q interface to an external Baseband MAC Processor. This lets designers use the best-in-class Baseband MAC Processor or ASIC available both now and in the future. The digital I/Q interface is compliant with JEDEC JESD207, Radio Front End - Baseband Digital Parallel Interface standard.
- Configurable channel bandwidths of 3.5 MHz, 5 MHz, 7 MHz, 8.75 MHz, 10 MHz, 14 MHz, and 20 MHz
- Programmable transmitter gain control for mobile applications

Reliable Performance

PMC-Sierra has supplied and supported high performance semiconductor solutions to the communications industry for over a decade. The same performance philosophy applies to our WiMAX products.

Transmit Path

- EVM (measured after integrated balun): -36 dB @Pout = 0 dBm (2.5 GHz), -34 dB @Pout = 0 dBm (3.5 GHz)
- Tx power control range: 70 dB (1 dB steps)
- -77 dBm/MHz noise floor at 70 MHz offset

Receive Path

- EVM: -36 dB (2.5 GHz), -34 dB (3.5 GHz)
- RFIC noise figure: 2.9 dB (2.5 GHz), 3.3 dB (3.5 GHz)
- Rx gain control: 93 dB range (1.5 dB steps), 106 dB max gain
- Adjacent channel rejection: 26 dB (64 QAM)
- Alternate channel rejection: 34 dB (64 QAM)

General Device Information

- Control interface conforms to industry standard SPI specifications used by Baseband MAC Processors
- 1.8V ± 5% and 2.5V ± 5% supply voltages
- Industrial temperature range (-40 °C to +85 °C)
- 108-pin Dual Row 0.65 mm pitch Micro Lead Frame (MLF/QFN) (11 x 11 mm body)

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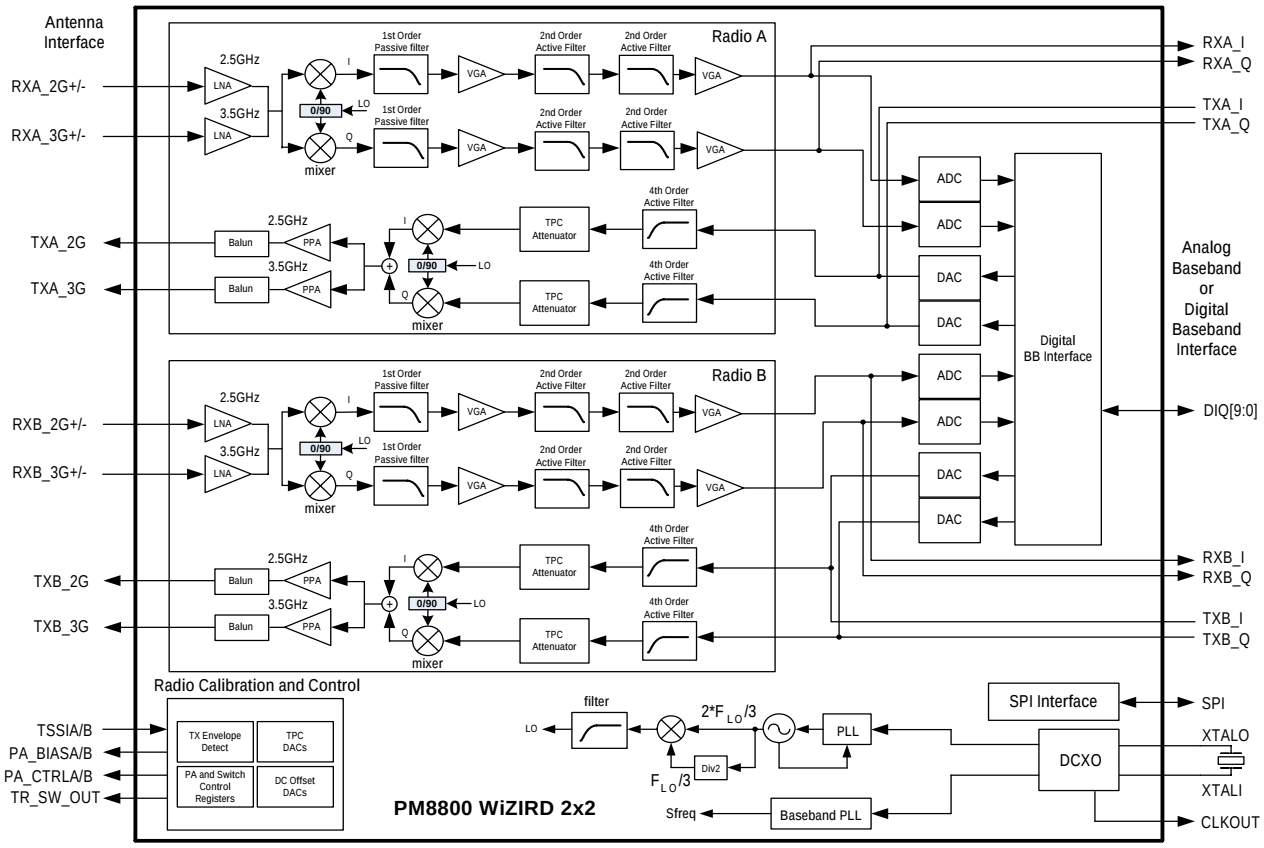
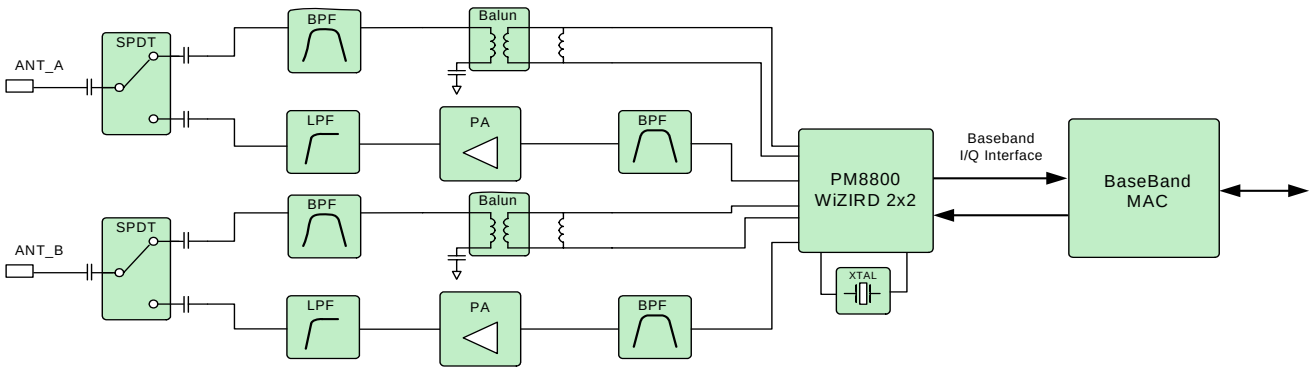
Applications

- PCMCIA Cards, PC Express Cards, USB Dongles
- Customer Premises Equipment (CPE)
- Femto Base Stations

Block Diagram



Applications Diagram



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